BMEN30005 Introduction to Biomechanics

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	This subject is not offered in 2013.
Time Commitment:	Contact Hours: 36 hours of lectures; 12 hours of tutorials; 12 hours of workshops Total Time Commitment: 120 hours
Prerequisites:	

Subject	Study Period Commencement:	Credit Points:
COMP20005 Engineering Computation	Semester 1	12.50

AND either

Subject	Study Period Commencement:	Credit Points:
MAST20029 Engineering Mathematics	Not offered 2013	12.50

OR both of the following subjects -

Subject	Study Period Commencement:	Credit Points:
MAST20009 Vector Calculus	Not offered 2013	12.50
MAST20030 Differential Equations	Not offered 2013	12.50

COMP20005 Engineering Computation and MAST20029 may be taken concurrently.

Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	BMEN30005 Biomechanics and Biotransport
Core Participation Requirements:	For the purposes of considering applications for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005) and Students Experiencing Academic Disadvantage Policy, this subject requires all students to actively and safely participate in laboratory activities. Students who feel their disability may impact upon their participation are encouraged to discuss this with the Subject Coordinator and the Disability Liaison Unit. http://www.services.unimelb.edu.au/disability/
Contact:	Email: **pandym@unimelb.edu.au (mailto:pandym@unimelb.edu.au)**
Subject Overview:	This subject provides an introduction to the biomechanics of human movement. At the completion of the subject, students will be able to - # Understand the basic concepts of mechanics and appreciate the ways in which they can be applied to the study of musculoskeletal biomechanics # Describe some of the common experimental methods used to study human motion biomechanics # Describe and be able to apply some of the theoretical methods used to analyse human movement Topics covered include kinematics and dynamics of particles and rigid bodies; kinematic measurement techniques; processing of kinematic measurements; anthropometric properties

	of body parts; force and moment of force; equations of motion; force and strain requirements in biomechanics; work, energy and power in human motion.
Objectives:	On completing this subject the student will/should have the ability to - # Understand the basic concepts of mechanics and appreciate the ways in which they can be applied to the study of human movement; # Understand some of the common experimental methods used in human movement studies; # Apply some of the theoretical methods used to analyse human movement.
Assessment:	One hour written test mid semester (10%; Three assignments throughout the semester (10% each) One written examination of two hours duration at the end of semester (60%)
Prescribed Texts:	Abernethy B et al. Biophysical Foundations of Human Movement. Human Kinetics.
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2013/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2013/B-COM)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2013/B-MUS)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completing this subject, students should have developed - # The ability to apply knowledge of science and engineering fundamentals # The ability to undertake problem identification, formulation and solution # The ability to utilise a systems approach to complex problems and to design and operational performance # Proficiency in engineering design # The ability to communicate effectively, with the engineering team and with the community at large # A capacity for creativity and innovation # The ability to function effectively as an indvidual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member # A capacity for lifelong learning and professional development
Related Majors/Minors/ Specialisations:	Bioengineering Systems Master of Engineering (Biomedical) Science-credited subjects - new generation B-SCI and B-ENG. Core selective subjects for B-BMED.